Abstract

A method and machine-readable medium provide a technique to modify a hexahedral finite element volume mesh using dual generation and sheet insertion. After generating a dual of a volume stack (mesh), a predetermined algorithm may be followed to modify (refine) the volume mesh of hexahedral elements. The predetermined algorithm may include the steps of locating a sheet of hexahedral mesh elements, determining a plurality of hexahedral elements within the sheet to refine, shrinking the plurality of elements, and inserting a new sheet of hexahedral elements adjacently to modify the volume mesh. Additionally, another predetermined algorithm using mesh cutting may be followed to modify a volume mesh.